15-Year Plan Analysis

Table of Contents

Missouri Department of Transportation
105 West Capitol Avenue
P.O. Box 270
Jefferson City, MO 65102
1-888-ASK MODOT
www.modot.state.mo.us

For more information, contact the Missouri Department of Transportation, Public Affairs Division, at (573) 751-2840.

Introduction

The Missouri Department of Transportation has completed an analysis of the 15-Year Plan for Road and Bridge Improvements approved in 1992, and of Missouri's current highway needs. MoDOT completed this analysis using data compiled for the report required by the 1998 accountability legislation (HB 1681 and SB 883), as well as other engineering and financial data available to the department.

MoDOT conducted a complete and thorough review of the critical issues affecting the 15-Year Plan. To ensure MoDOT's analysis is thorough and accurate, the department retained KPMG, an independent accounting and auditing firm, to review MoDOT's estimating procedures and methodologies. In addition, MoDOT worked with the Office of Administration to develop a model to analyze the long-term outlook for completing and financing the 15-Year Plan or any other road and bridge program.

The analysis focuses on the following four critical issues affecting the 15-Year Plan.

1. ***Project cost estimates*** - MoDOT completed a thorough re-estimating of the cost of the remaining 15-Year Plan projects, including a review by KPMG of the MoDOT estimating methodology.

2. ***Inflation and project growth assumptions*** - MoDOT completed an analysis of reasonable inflation and project growth factors to be used in developing a long-term financing plan required for any highway construction program.

3. ***State and federal revenues*** - MoDOT conducted an analysis of state revenue and of federal revenues available for MoDOT programs under the new Transportation Equity Act for the 21st Century (TEA-21).

4. ***Road and bridge needs*** - MoDOT worked with citizens and agencies across the state to identify the road and bridge needs in Missouri. In addition, MoDOT completed a review of the condition of Missouri's roads and bridges.

At the conclusion of the analysis, MoDOT proposes a 5-Year Plan -- based on current fiscal conditions -- that focuses on high-priority projects (see page 29).

Summary of Results

MoDOT's analysis, which was reviewed by the Office of Administration, reached the following five conclusions.

Conclusion I.

When the department's current construction program, known as the Short-Term Action Plan (STAP), expires at the end of 1999 (eight years into the 15-Year Plan), only 21 percent of the 15-Year Plan projects will be completed or contracted.

Conclusion II.

Under any reasonable assumptions, the 15-Year Plan projects cannot be completed in any time frame given currently anticipated revenues, even assuming permanent extension of the 6-cent motor fuel tax currently scheduled to sunset in 2008. Furthermore, this conclusion assumes no additional spending by MoDOT on preservation or new needs. Any additional spending on preservation or new needs will widen the funding gap in the 15-Year Plan.

A. *The 15-Year Plan is not financially viable because it was based on three flawed cost assumptions.*

1. Deficient initial cost estimates - New cost estimates mandated by the accountability legislation reveal that projects remaining after 1999 will cost $19.025 billion. The initial cost estimate for the entire 15-Year Plan in 1992 was $14.018 billion.

a. MoDOT estimates that the original cost estimates for the 15-Year Plan were understated by $3.8 billion in 1992 dollars, a variance of 27 percent.

2. Lack of a factor for project inflation and project growth - All other states for which MoDOT has data assume a factor for project inflation and project growth (usually 3 percent or more) or update their cost estimates annually.

3. Revenue/expenditure imbalance -- The 15-Year Plan would not have been completed in 2010 even under the original assumptions made in 1992. As crafted and approved in 1992, projected costs exceeded projected revenues by $1.4 billion. More specifically, the 15-Year Plan anticipated revenues of $12.586 billion through 2010, assuming extension of the 6-cent motor fuel tax currently scheduled to sunset in 2008. The plan estimated $14.018 billion in expenditures.

B. *State and federal revenue increases are not sufficient to make up for the errors on the cost side of the plan.*

1. Assuming the continuation of the 6-cent motor fuel tax, which is currently scheduled to sunset in 2008, MoDOT estimates an additional $1.63 billion in state funds over the original 15-Year Plan estimates will be available for the construction program. This results from $984 million in additional revenues and $646 million in reduced MoDOT expenditures for administration, fringe benefits, and maintenance.

2. Federal revenues will be greater under TEA-21 than under ISTEA. Nevertheless, TEA-21 has only a modest positive impact on the 15-Year Plan. Through 2010, MoDOT estimates that federal revenues (ISTEA and TEA-21 combined) will provide only an additional $138 million over the original 1992 15-Year Plan estimates for federal revenue available for the construction program.

3. There are five reasons that TEA-21's positive impact on 15-Year Plan funding is only $138 million (see page 17).

a. Revenues available for construction of 15-Year Plan projects under ISTEA were $307 million less than anticipated in the 15-Year Plan.

b. The original 15-Year Plan correctly anticipated a significant revenue increase from ISTEA's successor program (TEA-21), so most of TEA-21's revenues are already calculated into the plan. Revenues available for construction of the 15-Year Plan projects under TEA-21 are projected to be $256 million more than anticipated in the 15-Year Plan, which is only about 10 percent more than what was anticipated.

c. For the period beyond TEA-21's six-year authorization, revenues available for construction of the 15-Year Plan are projected to be $189 million more than anticipated in the 15-Year Plan. This assumes that federal revenues beyond TEA-21 will grow by an estimated 1.5 percent annually.

d. TEA-21 earmarks $811 million for uses outside the state construction program such as metropolitan planning, hazard mitigation, congestion mitigation and air quality activities, recreational trails, and bridge enhancements.

e. TEA-21 earmarks $43 million for high-priority (i.e. demonstration) projects that were not in the 15-Year Plan.

4. The net result of the above is that state and federal funds available for the construction program will be $1.768 billion above the original estimates for the 15-Year Plan, which runs from 1992 through 2010. However, actual project costs are greatly above the original 1992 cost estimates. The problem, therefore, is on the cost side of the equation, not the revenue side.

Conclusion III.

Simply extending the schedule for completion of the 15-Year Plan from 2010 to some later year will not result in the plan being completed. In fact, delay diminishes MoDOT's ability to construct the 15-Year Plan projects. This conclusion is true even if no additional funding is provided for preservation or any new needs.

A. *The explanation is as follows.*

1. State revenues used for highway construction will grow by an estimated 2.11 percent annually.

2. Federal revenues used for highway construction, after the initial increase provided by TEA-21, will grow by an estimated 1.5 percent annually.

3. However, all of the long-term cost factors grow by more than the revenue growth rates:

a. Construction inflation/project growth (3 percent for the 5-Year Plan, 4.5 percent for projects to be contracted beyond the 5-Year Plan),

b. Maintenance (4 percent), and

c. Administration (3 percent).

4. Therefore, while the remaining projects grow in cost over time, the proportion of each available dollar going to construction will diminish. As a result, with each year, there is a greater disparity between the cost of construction and the revenues available for construction. Any delay increases the cost of completing the 15-Year Plan at a rate far greater than the rate of growth in revenues. The impact of these differential growth rates is substantial.

> ***The following analogy illustrates the situation:*** Suppose you're thinking about building a new house, but you don't know whether to build it this year or wait a few years. And let's say that each year, you can count on your boss giving you a 5 percent pay raise. However, each year, the cost of building the house goes up 7 percent because of such factors as materials, wage rates paid to construction workers and new zoning requirements. It's clear that the longer you wait to build that house, the tougher it's going to be because your 5 percent salary increases are not keeping up with the 7 percent increases in the costs of building the house. Soon, you're going to have to start thinking about building a smaller house. This is the same position MoDOT is in with regard to building new roads. Delaying, or stretching out, construction of these road projects simply makes them even more unaffordable.

Conclusion IV.

Preservation of current roads and bridges is critical to the safety of Missouri motorists and to the state's economy. Although preservation was an element of the 15-Year Plan, the state's preservation needs are mounting more quickly than anticipated in the 15-Year Plan. The condition of the state's roads, especially interstate highways, has deteriorated since the 15-Year Plan was enacted.

The 15-Year Plan vastly underestimated the state's preservation needs and associated costs. Preservation should be funded first and at a much higher level than the 15-Year Plan envisioned. The state's preservation needs for roads and bridges are currently estimated to require an additional $80 million annually (see page 26).

A. *Interstate highways* - To meet the state preservation goal for this system will require an additional $37 million annually.

B. *National Highway System (primarily four-lane non-interstate highways)* - To meet the state preservation goal for this system will require an additional $13 million annually.

C. *Non-National Highway System (primarily two-lane roads)* - To maintain the state preservation goal for this system will require continuation of current funding levels.

D. *Bridges* - There are about 2,700 deficient state bridges (28 percent), which is the seventh highest number and 17th-highest percentage of deficient bridges in the country. To repair or replace all deficient bridges on the state system, the state needs to spend an additional $30 million annually.

Conclusion V.

The 15-Year Plan projects should remain the focus of any road and bridge program. However, other substantial road and bridge needs in addition to preservation have been identified that were not included in the 15-Year Plan or were not addressed to the extent now necessary, including the following.

A. *Interstate highways* - The 15-Year Plan contained inadequate funding for reconstruction. Interstate highways carry one-third of all vehicle miles driven in the state yet only half of the lane miles are currently in good or better condition.

In addition, traffic on interstate highways, especially commercial vehicles, has increased substantially since 1992 when the plan was initiated. For example, commercial vehicle traffic on Interstate 70 in Missouri has increased 21 percent in the past four years. Portions of the state's interstates are 30 to 40 years old and are deteriorating rapidly.

B. *Unidentified Needs/Economic Development* - The 15-Year Plan provided $225 million (only 1.6 percent of the program) for unidentified needs, including economic development projects that would arise during the plan. The Total Transportation Commission recommended that 5 percent of transportation funding be set aside to meet economic development needs and opportunities. MoDOT concurs with this recommendation based on department experience.

Significant economic development needs and opportunities emerge over time. For example, the U.S. Army has invested significant amounts to develop Fort Leonard Wood during the past two years with considerable additional development planned. The state will need to invest additional amounts to ensure retention of Fort Leonard Wood for the long-term. Other examples of major economic development needs that have arisen in the past few years include providing bridges and paving for Proctor and Gamble at Cape Girardeau and providing an interchange for Breyers Ice Cream in Sikeston.

Review of
15-Year Plan Analysis

I. Project Cost Estimates

The first critical issue prohibiting completion of the 15-Year Plan is the total cost of the remaining projects in current dollars. As part of the accountability legislation, the General Assembly required that MoDOT provide updated cost estimates in its first accountability report.

A. Review Process

1. MoDOT's district engineers and their staff re-estimated the cost of every 15-Year Plan project remaining to be completed. The review and re-estimating process was much more thorough than that used in development of the 15-Year Plan.

2. MoDOT's Design, Right of Way, and audit staff visited each district office to review these re-estimates to ensure that proper and consistent estimating procedures were followed and fully documented.

3. MoDOT retained KPMG to select a sample of projects to test compliance with policies and procedures under the defined methodology. KPMG visited district offices to determine if MoDOT engineers completed their cost estimates on this sample of projects using the defined methodology.

4. KPMG also reviewed the estimating methodology that MoDOT developed for use in the re-estimating process. KPMG reviewed the adequacy of MoDOT documentation for the estimates.

B. Results of the Review

1. In 1992, MoDOT estimated that it would cost $14.018 billion to complete the entire 15-Year Plan.

2. By the end of the Short Term Action Plan (STAP) in 1999, MoDOT will have spent about $5.2 billion on 15-Year Plan projects.

3. MoDOT now estimates that after the conclusion of STAP in 1999, there will be $19.025 billion in remaining projects to be completed at current costs (i.e. the cost of completing the remaining projects in fiscal year 1999 dollars). *Note: The Short-Term Action Plan was created in 1995 to complete Proposition A projects promised to the public in 1987, as well as honor high-priority 1992 commitments. STAP will end December 31, 1999.*

4. MoDOT estimates that the original cost estimates for the 15-Year Plan were understated by $3.8 billion in 1992 dollars, a variance of 27 percent.

5. KPMG's review of compliance with the defined cost-estimating procedures identified certain exceptions. MoDOT does not believe these exceptions materially impact the overall cost estimates. However, procedures have been strengthened as a result of KPMG's findings.

6. KPMG's independent review evaluated the adequacy of the new MoDOT estimating procedures, its documentation, and the accuracy of the overall cost estimate. New department estimating procedures, based on KPMG recommendations, provide cost projections that are much more accurate.

7. The table below indicates, by work type, the percent of the 15-Year Plan projects that are anticipated to be completed or under contract by the end of the Short-Term Action Plan in 1999.

Type of work	1992 Promise	Amount under contract or completed at end of Short-Term Action Plan	Percent of projects under contract or completed
Add lanes	806 miles	120 miles	15 %
Four laning	1,940 miles	389 miles	20 %
New two lane	668 miles	119 miles	18 %
Major resurfacing	6,010 miles	1,977 miles	33 %
Minor resurfacing	12,806 miles	7,720 miles	60 %
Major bridges	22 bridges	7 bridges	32 %
Minor bridges	1,112 bridges	314 bridges	28 %
Total			**21 %**

II. Project Inflation and Project Growth

The second critical issue prohibiting completion of the 15-Year Plan is faulty assumptions for project inflation and project growth in the long-term financing plan.

- Project inflation is additional costs that result due to price increases in materials, labor, and other factors.

- Project growth occurs as a result of unanticipated costs resulting from changes in scope, design, and unforeseen requirements. These include discovery of hazardous materials, changes in housing and development patterns, new environmental requirements, litigation, additional right-of-way needs, unexpected construction problems, new safety needs, and new economic development needs.

- As a general rule, the further into the future an agency tries to plan a construction project, the more likely it is that changes will ultimately have to be made to the project plans due to one or more of the above factors. That is, the distant future is more uncertain, and therefore harder to plan for, than the near future.

- In 1992, MoDOT assumed there would be no increase related to project inflation and project growth. In 1997, the Total Transportation Commission, with assistance from KPMG, the HNTB engineering firm, and the Office of Administration, recommended that a 4.5 percent factor for project inflation and project growth be included in any long-term financing plan.

A. Review Process

1. MoDOT contacted all other states to find out what project inflation and project growth factor they include in their long-term financing plans.

2. KPMG reviewed summary information compiled by MoDOT based on the information obtained from the 35 states that responded.

B. Results of the Review

1. 35 states responded to MoDOT on the means they use to address project inflation and project growth.

- **a.** 19 states assume a factor of 3 percent or more.
- **b.** 3 states use a factor between 2 and 3 percent.
- **c.** 13 states recognize the need to address project inflation and project growth by updating their cost estimates annually.

2. 29 of these 35 states avoid adopting specific long-term highway plans (greater than six years duration) because of the inherent difficulty in estimating project inflation and project growth.

3. MoDOT recommends the following factors for project inflation and project growth. MoDOT will evaluate these factors on an annual basis and provide its analysis and any recommended changes in the annual report required by the accountability legislation.

- **a.** 3 percent for projects to be contracted in the next five years.
- **b.** 4.5 percent for projects to be contracted beyond the five-year time horizon.

4. MoDOT's recommendations are based on the following.

- **a.** 3 percent for the next five years is reasonable because by the end of 1998, MoDOT will have $500 million in projects already designed and ready for contract. Substantial growth on these projects is unlikely.
- **b.** MoDOT has completed its most thorough process ever for re-estimating the costs of its projects and also retained KPMG to validate this process.
- **c.** Prior to the 15-Year Plan, MoDOT included a 5 percent factor for the effects of project inflation and project growth. A 5 percent factor was included in the 1987 Proposition A plan and actual awards tracked closely to program estimates. However, actual awards significantly began to exceed program estimates immediately following implementation of the 15-Year Plan, which included no such factor.

d. Based on this information and evaluation, KPMG and the Office of Administration believe that the 3 percent and 4.5 percent project inflation and project growth factors are reasonable compared to those used by other states for developing and evaluating a long-term financing plan for highway projects.

Project Inflation/Project Growth Factors in Other States

3 Percent or Greater		Between 2 and 3 Percent		Revised Annually
Kansas	5.2	New Mexico*	2.5	Connecticut
Idaho	5	Florida	2.3	Georgia
Texas	5	California	2.2	Hawaii
Colorado	4.6			Kentucky
Alaska	4.5			Louisiana
Pennsylvania	4			Massachusetts
Tennessee	4			Maine
Arizona	3.5			Michigan
Maryland	3.5			Minnesota
Nebraska	3.5			Mississippi
South Carolina	3.5			North Carolina
Arkansas	3.2			New Hampshire
Alabama	3			Oklahoma
Delaware	3			
Indiana*	3			
Iowa	3			
Illinois	3			
Montana	3			
North Dakota	3			

*Also revises annually

Note: 29 of these 35 states do not plan highway construction programs beyond six years. Planning beyond six years would typically warrant the use of higher project inflation/ project growth factors.

III. State and Federal Revenues

The third critical issue affecting the outlook for the 15-Year Plan is the amount of state and federal revenues that will be available to the state for highway construction.

A. Review Process

1. MoDOT and the Office of Administration reviewed actual and projected state revenues.

2. In 1998, the U.S. Congress passed the Transportation Equity Act for the 21st Century (TEA-21), which reauthorized federal aid for highways and transportation. The bill made numerous changes to the funding formulas and earmarked money for specific high priority projects. MoDOT and the Office of Administration reviewed projections available from the Federal Highway Administration on the outlook for federal revenues.

B. Results of the Review: State Revenues **(see table on page 16)**

1. Assuming continuation of the 6-cent motor fuel tax, which is currently scheduled to sunset in 2008, state revenues and reduced expenses are estimated to provide an additional $1.63 billion for the construction program over the original 15-Year Plan estimates through 2010. This results from the following:

a. $984 million in greater than expected revenues, and

b. $646 million in reduced MoDOT expenditures for administration, fringe benefits, and maintenance.

2. MoDOT and the Office of Administration believe that a 2.11 percent growth rate for state highway funds remains reasonable, based on past actual revenue growth. MoDOT, KPMG, and the Office of Administration recommend that state revenue growth should be reviewed each year.

C. Results of the Review: Federal Revenues **(see table on page 17)**

1. Federal revenues are expected to provide only $138 million more through 2010 than originally anticipated in the 15-Year Plan for the reasons listed below. This assumes that the U.S. Congress appropriates 100 percent of the funds authorized by TEA-21 each year -- something that happened only once under ISTEA.

- **a.** Revenues available for construction of 15-Year Plan projects under ISTEA were $307 million less than anticipated in the 15-Year Plan. This was partially because substantial portions of ISTEA revenues were specifically earmarked by Congress for purposes other than state highway construction and for construction projects outside the 15-Year Plan.

- **b.** The original 15-Year Plan correctly anticipated a significant revenue increase from ISTEA's successor program, TEA-21, so most of TEA-21's revenues are already calculated into the plan. Revenues available for construction of the 15-Year Plan projects under TEA-21 are projected to be $256 million more through 2003 (when TEA-21 expires) than anticipated in the 15-Year Plan, which is only about 10 percent more than what was anticipated.

- **c.** For the period beyond TEA-21 (2004 - 2010), revenues available for construction of the 15-Year Plan are projected to be $189 million more than anticipated in the 15-Year Plan.

- **d.** TEA-21 earmarks $811 million of Missouri's authorization for uses outside the state construction program such as metropolitan planning, hazard mitigation, congestion mitigation and air quality activities, recreational trails, and bridge enhancements.

- **e.** TEA-21 earmarks $43 million of Missouri's authorization for high-priority (i.e. demonstration) projects that were not in the 15-Year Plan.

2. As the table on page 17 shows, the difference in federal funds estimated to be received through 2010 is only marginally higher than originally estimated. This small amount will have negligible impact on completion of the 15-Year Plan.

3. MoDOT, KPMG, and the Office of Administration recommend that federal revenue growth be reviewed each year.

D. Results of the Review: Combined State and Federal Revenues

1. Combined funds available for the construction program will be $1.768 billion more through 2010 than originally anticipated. However, the cost estimates for the remaining 15-Year Plan projects are $19.025 billion, which is $5.007 billion greater than the original estimate for the entire plan. Thus, the problem with the financial viability of the 15-Year Plan is the cost side of the equation, not the revenue side.

State Funding Available for State Construction Program

(in millions)

Year	Actuals and Current Projections	1992 15-Year Plan Projections	$ Difference	Percent Difference
1992	177	140	37	26.4 %
1993	143	163	-20	-12.3 %
1994	180	157	23	14.6 %
1995	213	193	20	10.4 %
1996	293	188	105	55.9 %
1997	311	223	88	39.5 %
1998	324	221	103	46.6 %
1999	296	221	75	33.9 %
2000	308	221	87	39.4 %
2001	329	219	110	50.2 %
2002	330	219	111	50.7 %
2003	331	220	111	50.5 %
2004	331	219	112	51.1 %
2005	329	220	109	49.5 %
2006	329	218	111	50.9 %
2007	329	216	113	52.3 %
2008	324	213	111	52.1 %
2009	321	210	111	52.9 %
2010	321	207	114	55.1 %
Totals	**5,519**	**3,888**	**1,630***	**41.9 %**

* Does not exactly add due to rounding.

Federal Funding Available for State Construction Program

(in millions)

Year	15-Year Plan Assumptions	Actuals Plus TEA-21 Assumptions	$ Difference	Percent Difference
1992	324	270	(54)	-16.7 %
1993	391	317	(74)	-18.9 %
1994	391	339	(52)	-13.3 %
1995	391	373	(18)	- 4.6 %
1996	403	338	(65)	-16.1 %
1997	404	360	(44)	-10.9 %
1998	415	372	(43)	-10.4 %
1999	421	487	66	15.7 %
2000	434	497	63	14.5 %
2001	447	507	60	13.4 %
2002	460	517	57	12.4 %
2003	474	527	53	11.2 %
2004	488	537	49	10 %
2005	503	545	42	8.3 %
2006	518	553	35	6.8 %
2007	534	561	27	5.1 %
2008	550	570	20	3.6 %
2009	566	578	12	2.1 %
2010	583	587	4	0.7 %
Totals	**8,697**	**8,835**	**138**	**1.6 %**

IV. Long-Term Financing Model

Given the problems that have occurred with the 15-Year Plan, it was essential that a long-term financing model be developed to evaluate the impact of various revenue and expenditure assumptions on the completion of the 15-Year Plan or any other long-term highway plan.

A. Review Process

1. MoDOT and the Office of Administration constructed long-term financing models independently to evaluate the effects various revenue and expenditure assumptions have on completion of the 15-Year Plan.

2. KPMG applied procedures to each of the models to determine the accuracy of the underlying input data and the mathematical accuracy of the calculations.

B. Results of the Review

1. MoDOT and the Office of Administration agreed upon a model to be used for evaluating long-term highway financing needs.

2. Any model and all assumptions should be updated annually. The results of the annual simulations will be shared with the public through the annual accountability report.

3. KPMG has validated the mathematical accuracy of the model that will be used by MoDOT and the Office of Administration to evaluate any long-term financing plans.

4. Using the model developed, various simulations were undertaken to determine when, or if, the projects included in the 15-Year Plan would be completed.

C. General Assumptions

1. The updated $19.025 billion cost estimate for the remaining 15-Year Plan projects was used.

2. Actual state and federal revenues were used for 1992-1998.

3. Updated state revenue estimates were used. State revenues for highway construction (a combination of motor fuel taxes and assorted fees) are assumed to grow at 2.11 percent annually. This has historically been the rate of growth for these revenues.

4. New TEA-21 federal revenue estimates were used. These estimates assume that the U.S. Congress appropriates 100 percent of the funds authorized by the new act -- something that happened only once under ISTEA. Under this assumption, federal funds will provide only $138 million more through 2010 for construction than originally anticipated in 1992.

5. Beyond 2003, federal revenues for highway construction, after the initial increase provided by TEA-21, are estimated to grow by 1.5 percent annually.

6. The permanent continuation of the 1992 6-cent motor fuel tax, which is currently scheduled to sunset in 2008 was assumed -- the same assumption made in the 15-Year Plan as written in 1992.

7. A project inflation/project growth factor of 3 percent for 5-Year Plan projects and 4.5 percent for projects to be contracted beyond the 5-Year Plan was assumed.

8. The assumptions recommended by the Total Transportation Commission for administrative and maintenance costs were used. MoDOT has adopted these assumptions as goals.

- **a.** 3 percent growth for administrative costs
- **b.** 4 percent growth for maintenance costs

D. Simulations

The following simulations are offered as illustrations only. They demonstrate the funding shortfall in the 15-Year Plan. The simulations assume no new needs and no additional preservation funding. That is, these are simulations of the 15-Year Plan as written in 1992 with no changes or additions and with no additional revenue beyond what is currently anticipated and outlined in the assumptions on the previous pages.

1. **Simulation #1** - Spending is 66 percent rural/34 percent urban reflecting what is remaining in the 15-Year Plan.

a. Specific Assumptions

- 66 percent rural/34 percent urban -- reflecting the actual split of projects remaining to be completed.
- Preservation is funded at the same level present in the Short-Term Action Plan.
- Assumes only currently anticipated revenues.

b. Specific Results

- The 15-Year Plan is never completed. Indeed, in the year 2050, the remaining 15-Year Plan projects will cost $13.2 billion.
- This scenario provides no additional funding for preservation -- thus roads and bridges would continue to deteriorate, resulting in much higher long-term costs.
- This scenario provides no additional funding for new needs.

2. Simulation #2 - Spending is 59 percent rural/41 percent urban reflecting the original split in the 15-Year Plan.

a. Specific Assumptions

- 59 percent rural/41 percent urban -- reflecting the split originally contained in the 15-Year Plan.
- Preservation is funded at the same level present in the Short-Term Action Plan.
- Assumes only currently anticipated revenues.

b. Specific Results

- The 15-Year Plan is never completed. Indeed, in the year 2050, the remaining 15-Year Plan projects will cost $21.5 billion.
- This scenario provides no additional funding for preservation -- thus roads and bridges would continue to deteriorate, resulting in much higher long-term costs.
- This scenario provides no additional funding for new needs.

3. Simulation #3 - Spending is 55 percent rural/45 percent urban reflecting a mid-point between the original 15-Year Plan and STAP.

a. Specific Assumptions

- 55 percent rural/45 percent urban -- reflecting a mid-point between the original 15-Year Plan and the Short-Term Action Plan split of funding.
- Preservation is funded at the same level present in the Short-Term Action Plan.
- Assumes only currently anticipated revenues.

b. Specific Results

- The 15-Year Plan is never completed. Indeed, in the year 2050, the remaining 15-Year Plan projects will cost $28.5 billion.
- This scenario provides no additional funding for preservation -- thus roads and bridges would continue to deteriorate, resulting in much higher long-term costs.
- This scenario provides no additional funding for new needs.

4. Simulation #4 - Spending is 50 percent rural/50 percent urban reflecting a closer approximation to STAP.

a. Specific Assumptions

- 50 percent rural/50 percent urban -- reflecting a closer approximation to the Short-Term Action Plan funding split.
- Preservation is funded at the same level present in the Short-Term Action Plan.
- Assumes only currently anticipated revenues.

b. Specific Results

- The 15-Year Plan is never completed. Indeed, in the year 2050, the remaining 15-Year Plan projects will cost $37.2 billion.
- This scenario provides no additional funding for preservation -- thus roads and bridges would continue to deteriorate, resulting in much higher long-term costs.
- This scenario provides no additional funding for new needs.

Note: Rural/Urban Funding Allocation

The rural/urban funding allocations for the original 15-Year Plan, the period before the Short-Term Action Plan, the period of the Short-Term Action Plan, current estimates for the remaining 15-Year Plan projects and the proposed 5-Year Plan are compared in the table below. "Urban" includes only the St. Louis and Kansas City areas.

	15-Year Plan	Actual Distribution 1992-1995	STAP 1995-1999	Remainder of 15-Year Plan 2000-2010	Proposed 5-Year Plan Distribution 1999-2003 *
Rural	59 %	67 %	49 %	66 %	50 %
Urban	41 %	33 %	51 %	34 %	50 %
Totals	100 %	100 %	100 %	100 %	100 %

** Distribution applies to post-STAP projects only.*

Needs Not Adequately Addressed in 15-Year Plan

I. Preservation

Preservation includes resurfacing and other structural repairs that maintain the life of a road or bridge. The integrity of the state's existing road and bridge system must be addressed first to ensure the economic health of the state and the safety of the motoring public. Preservation was an element of the 15-Year Plan, but was not adequately addressed.

A. Review Process

1. During the past 10 years, MoDOT has developed a sophisticated system of measuring the conditions of Missouri's highways. The Automatic Road Analyzer (ARAN) system is a state-of-the-art system that measures the rutting, roughness and surface condition of Missouri's highways. MoDOT reviewed the output of the ARAN system to establish the quality of Missouri's roads.

B. Results of the Review

1. The state's preservation needs for roads and bridges are currently estimated to require an additional $80 million annually (see table on page 26). *Note: It should be noted that the 15-Year Plan, under any reasonable assumptions, cannot be completed in any time frame given currently anticipated revenues, including additional revenues anticipated under TEA-21 and revenues from permanent extension of the 6-cent motor fuel tax scheduled to sunset in 2008. This conclusion assumes no additional spending on preservation or new needs.*

2. The condition of the state's roads has seriously deteriorated since the 15-Year Plan was enacted.

3. The state's preservation needs are mounting more quickly than the 15-Year Plan anticipated.

4. The 15-Year Plan underestimated the state's preservation needs and associated costs.

5. The state's interstate highway system is among the oldest in the nation because Missouri was the first state in the nation to begin construction on the interstate highway system in 1956.

6. Interstate highways carry one-third of all vehicle miles driven in the state, yet only half of the interstate lane miles are currently in good or better condition.

7. The 15-Year Plan included only enough money to resurface each mile of interstate highway once every 31 years -- obviously an insufficient amount.

8. 28 percent of the bridges under MoDOT's jurisdiction are deficient. Missouri ranks seventh in the number of deficient state bridges and 17th in the percentage of deficient state bridges.

9. To address Missouri's road and bridge preservation needs, the state must do the following (see table on page 26).

- **a.** Fund preservation as the first priority -- and at a much higher level than the 15-Year Plan envisioned.

- **b.** Focus on maximizing quality roads at a reasonable cost. MoDOT's transportation management systems allow the state to estimate the level of annual investment needed to reach a specific goal. The goal recognizes the number of vehicle miles driven and the importance of each part of the highway and bridge system to the state's economy.

- **c.** Spend an additional $30 million annually to repair or replace all deficient bridges on the state system.

STATEWIDE PRESERVATION

	Miles/ Structures	Percent of Miles Driven	Current Percent Good or Better	Goal Percent Good or Better	Current Annual Funding	Goal Annual Funding	Increase d Annual Funding
Interstate highways	1,178	38 %	35 %	85 %	$39	$76	$37
National Highway System (NHS) - primarily 4-lane roads	3,264	30 %	32 %	50 %	$25	38	$13
Non-NHS system* - primarily 2-lane roads	27,972	32 %	Maintain current conditio n	Maintain current condition	$26	$26	0
Subtotal	32,414				$90	$140	$50
State Bridges	9,777				$70	$100	$30
Total					**$160**	**$240**	**$80**

* The non-NHS system uses fair or better, rather than good or better, for its condition ratings.

II. Other Highway Needs

MoDOT consults with organizations and citizens throughout the state to identify Missouri's road and bridge needs. In order to address continually changing local needs, communities may work with MoDOT to change local priorities and have those changed priorities reflected in the state's transportation plans.

A. Review Process

1. MoDOT worked with local planning organizations throughout the state to determine the long-term transportation needs for the state system.

B. Results of the Review

1. MoDOT has identified two major needs that the 15-Year Plan either did not include or did not address to the extent now necessary -- reconstruction of interstate highways and unidentified needs including economic development projects. Each of these needs is critical to address in the next five years. *Note: It should be noted that the 15-Year Plan, under any reasonable assumptions, cannot be completed in any time frame given currently anticipated revenues including additional revenues anticipated under TEA-21 and revenues from permanent extension of the 6-cent motor fuel tax scheduled to sunset in 2008. This conclusion assumes no additional spending on preservation or new needs, such as those identified here.*

a. Interstate highway reconstruction

- The 15-Year Plan contained inadequate funding for reconstruction.

- Interstate highways carry one-third of all vehicle miles driven in the state yet only half of the lane miles are currently in good or better condition.

- Traffic on interstate highways, especially commercial vehicles, has increased substantially since 1992 when the plan was initiated. For example, commercial vehicle traffic on I-70 in Missouri has increased 21 percent in the past four years.

- Portions of the state's interstates are 30 to 40 years old and are deteriorating rapidly. The state’s interstate highway system is among the oldest in the nation because Missouri was the first state to begin construction on the interstate highway system in 1956.

- The 15-Year Plan contained funding for new lanes and some preservation for I-70 and I-44, but contained no funding for major reconstruction of existing lanes.

b. Unidentified Needs/Economic Development

- The 15-Year Plan provided $225 million (only 1.6 percent of the program) for unidentified needs, including economic development projects, that would arise during the plan.

- The Total Transportation Commission recommended that 5 percent of transportation funding be set aside to meet economic development needs and opportunities. MoDOT concurs with this recommendation.

- Significant economic development needs and opportunities emerge over time. For example, the U.S. Army has invested significant amounts to develop Fort Leonard Wood during the past two years with considerable additional development planned. The state will need to invest additional amounts to ensure retention of Fort Leonard Wood for the long-term. Other examples of major economic development needs that have arisen in the past few years include providing bridges and paving for Proctor and Gamble at Cape Girardeau and providing an interchange for Breyers Ice Cream in Sikeston.

MoDOT's Response: 5-Year Highway Plan

MoDOT has proposed a specific plan for highway construction covering the next five years. The plan relies only on currently anticipated revenues and it specifically lists all known projects expected to be contracted in the next five years.

Fifteen-Year Plan projects remain the focus of the 5-Year Plan, which also includes some desperately needed additional funding for road and bridge preservation, as well as some unallocated funds for future economic development needs and other new needs not presently known. For the period beyond this 5-year time horizon, MoDOT intends to continue focusing on the projects in the 15-Year Plan, although preservation and new needs must also be addressed.

<u>For the period beyond the 5-year time horizon, MoDOT cannot commit to any particular 15-Year Plan project because there are insufficient revenues to build them all. In other words, while MoDOT believes the projects in the 15-Year Plan are still important, any project that is not in the 5-Year Plan is uncertain and may not be built due to insufficient revenues.</u>

Improving the Way MoDOT Does Business

Recent improvements in MoDOT operations, planning and personnel ensure more accurate forecasting and funding for future projects.

1. The department's new 5-Year Plan for construction will be more accurate, due to the shorter planning cycle that ensures more accuracy in the near term, while allowing greater flexibility in the longer term.

2. The Missouri Highway and Transportation Commission has created new financial leadership for MoDOT. This leadership is now in place, after establishing the positions of and hiring a Chief Operating Officer and Chief Financial Officer in the past year.

3. A nationwide search for a new MoDOT Director is currently underway, in accordance with the accountability legislation.

4. New estimating procedures provide cost projections that are much more accurate. These procedures have been improved based on recommendations made by the accounting firm of KPMG.

5. Annual reports provided to the state legislature will include an external audit and details on MoDOT finances, project plans, project selection criteria, future costs and revenue, and many other details as required by the recently-passed accountability legislation.

6. The department has created a Strategic Plan that identifies its vision, mission, goals and values. The plan enables MoDOT to better set priorities and allocate financial resources.

7. To provide better internal control assurances for the Missouri Highway and Transportation Commission, the responsibilities of MoDOT's internal audit division were expanded. This will ensure the department is on target with its finances and operations.

8. MoDOT is now using a comprehensive budget process that requires managers to be accountable for their budget decisions. The department's Office of Resource Management provides the Missouri Highway and Transportation Commission with monthly budget reports.

9. The department is implementing management systems that will improve operations and product delivery. A construction management system will reduce paper flow, eliminate redundant processes and automate test results and materials certification. A project management system tracks, evaluates and coordinates all activities in a project's design stage and aids in providing the most timely, safe and cost-efficient projects.

10. MoDOT continues to pursue innovative financing opportunities through use of the Missouri Transportation Finance Corporation (the state's infrastructure bank) and through local transportation corporations that provide needed funding to accelerate projects.

11. Department operations have been streamlined by moving more responsibility to its 10 districts. Decisions that previously had been made in Jefferson City are now made at the local level, which allows customers to talk directly to the people making the decisions and provides quicker response.

12. MoDOT has reorganized to provide better service to internal and external customers. Research functions have been consolidated into the Research, Development and Technology Division, which allows more concentration in that area. The Maintenance and Traffic Division was divided to allow Maintenance to focus on roadway surface preservation, mowing and drainage, and for the Traffic Division to focus on safety issues, access control and development of intelligent transportation systems.

13. All future project planning will now include a factor for project inflation and project growth.

14. MoDOT has established long-term financing model capabilities, developed in cooperation with the Office of Administration, to assist in program planning.

15. MoDOT has improved its public involvement efforts by establishing customer service centers throughout the state.